IN THE CLAIMS

1. (Currently Amended) An interventional procedure simulation system, comprising a control unit and an interface unit, said control unit communicating with said interface unit to si mulate handling of at least one instrument interfaced by said interface unit,
~~characterised in~~
~~that~~ wherein control unit comprises a database of vessels having hierarchy structure, each vessel having a diameter and a stiffness, and said instrument being a tool expandable in a simulated vessel, whereby when said tool is expanded, a geometry of said vessel changes resulting in a fluid flow change.

2. (Previously Presented) The system of claim 1, wherein said simulated vessels are interconnected in a hierarchical structure and said fluid flow change effects fluid flow changes in adjacent simulated vessels.

3. (Previously Presented) The system of claim 1, wherein said instrument is a balloon, stent and/or a distal protection tool.

4. (Previously Presented) The system of claim 1, wherein a vessel is realized by a tubular geometry and specific stiffness.

5. (Previously Presented) The system of claim 1, wherein the vessels are realized by lesions having different stiffness than the neighboring vessel parts.

6. (Previously Presented) The system of claim 1, wherein the system calculates a flow through the hierarchal structure realized as a vessel-tree as a result of its geometry.

7. (Previously Presented) A method of simulating flow of a body fluid in an interventional procedure simulation system, comprising a control unit and an interface unit, said control unit communicating with said interface unit to simulate handling of at least one instrument interfaced by said interface unit, the method comprising the steps of:

- providing a database of vessels having hierarchy structure in said control unit, wherein each vessel has a diameter and a stiffness,
- providing said instrument as a tool expandable in a simulated vessel, and changing a geometry of said vessel resulting in a fluid flow change when said tool is expanded.

8. (Previously Presented) The method of claim 7, wherein the flow simulation is modeled as an electrical resistive network

9. (Previously Presented) The method of claim 8, wherein potentials correspond to pressure, currents correspond to flow and electrical resistance corresponds to fluid resistance.

10. (Previously Presented) The method of claim 9, wherein a top of the fluid network is realized in a left ventricle of a heart, and a bottom of the network is in veins connecting to a right atrium of the heart.

11. (Previously Presented) The method of claim 8, wherein flow calculation calculates recursively through a tree until flow and pressure in all branches are solved.